

CLAIMS

What is claimed is:

1. An isolated polypeptide comprising amino acid residues 26-52 of SEQ ID NO:2.
2. An isolated polypeptide of claim 1, wherein said polypeptide further comprises amino acid residues 119-142 of SEQ ID NO:2.
3. An isolated polypeptide of claim 2, wherein said polypeptide further comprises amino acid residues 55-114 of SEQ ID NO:2.
4. An isolated polypeptide of claim 2, wherein said polypeptide comprises the amino acid residues 26-142 of SEQ ID NO:2.
5. An isolated polypeptide of claim 2, wherein said polypeptide comprises the amino acid residues 1-142 of SEQ ID NO:2.
6. An isolated polypeptide consisting of the amino acid sequence of SEQ ID NO:2.
7. An isolated polypeptide selected from the group consisting of:
 - a) a polypeptide consisting of the sequence of amino acid residues from residue 26 to residue 52 of SEQ ID NO:2;
 - b) a polypeptide consisting of the sequence of amino acid residues from residue 26 to residue 53 of SEQ ID NO:2;
 - c) a polypeptide consisting of the sequence of amino acid residues from residue 26 to residue 54 of SEQ ID NO:2;
 - d) a polypeptide consisting of the sequence of amino acid residues from residue 55 to residue 114 of SEQ ID NO:2;
 - e) a polypeptide consisting of the sequence of amino acid residues from residue 55 to residue 115 of SEQ ID NO:2;
 - f) a polypeptide consisting of the sequence of amino acid residues from residue 55 to residue 116 of SEQ ID NO:2;
 - g) a polypeptide consisting of the sequence of amino acid residues from residue 55 to residue 117 of SEQ ID NO:2;
 - h) a polypeptide consisting of the sequence of amino acid residues from residue 55 to residue 118 of SEQ ID NO:2;

i) a polypeptide consisting of the sequence of amino acid residues from residue 119 to residue 142 of SEQ ID NO:2;

j) a polypeptide consisting of the sequence of amino acid residues from residue 26 to residue 114 of SEQ ID NO:2;

k) a polypeptide consisting of the sequence of amino acid residues from residue 26 to residue 118 of SEQ ID NO:2;

l) a polypeptide consisting of the sequence of amino acid residues from residue 55 to residue 142 of SEQ ID NO:2;

m) a polypeptide consisting of the sequence of amino acid residues from residue 1 to residue 25 of SEQ ID NO:2;

n) a polypeptide consisting of the sequence of amino acid residues from residue 1 to residue 52 of SEQ ID NO:2;

o) a polypeptide consisting of the sequence of amino acid residues from residue 26 to residue 54 of SEQ ID NO:2; and

p) a polypeptide consisting of the sequence of amino acid residues from residue 1 to residue 118 of SEQ ID NO:2.

8. An isolated protein comprising:

a B chain comprising amino acid residue 26 to amino acid residue 52 of SEQ ID NO:2; and

an A chain comprising amino acid residue 119 to amino acid residue 142 of SEQ ID NO:2;

wherein the B chain and A chain are joined by inter- and intra-chain disulfide bonds.

9. An isolated polypeptide according to claim 1, further comprising an affinity tag.

10. An isolated polypeptide according to claim 9, wherein said affinity tag is selected from the group consisting of: poly-histidine tract, protein A, glutathione S transferase, Glu-Glu affinity tag, substance P, Flag peptide, streptavidin binding peptide, maltose-binding protein, and an immunoglobulin domain.

11. An isolated polynucleotide molecule that encodes a polypeptide according to claim 1.

12. An isolated polynucleotide of claim 11, wherein said polynucleotide encodes a polypeptide further comprising amino acid residues 119-142 of SEQ ID NO:2.

13. An isolated polynucleotide of claim 12, wherein said polynucleotide encodes a polypeptide further comprising amino acid residues 55-114 of SEQ ID NO:2.
14. An isolated polynucleotide of claim 12, wherein said polynucleotide encodes a polypeptide further comprising the amino acid residues 26-142 of SEQ ID NO:2.
15. An isolated polynucleotide of claim 12, wherein said polynucleotide encodes a polypeptide comprising the amino acid residues 1-142 of SEQ ID NO:2.
16. An isolated polynucleotide encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2.
17. An isolated polynucleotide molecule comprising the nucleotide sequence of nucleotides 74 to 426 of SEQ ID NO:1.
18. An isolated polynucleotide molecule of SEQ ID NO:1.
19. An isolated polynucleotide selected from the group consisting of:
 - a) a polynucleotide consisting of nucleotides 74-156 of SEQ ID NO:1;
 - b) a polynucleotide consisting of nucleotides 74-159 of SEQ ID NO:1;
 - c) a polynucleotide consisting of nucleotides 74-162 of SEQ ID NO:1;
 - d) a polynucleotide consisting of nucleotides 163-342 of SEQ ID NO:1;
 - e) a polynucleotide consisting of nucleotides 163-345 of SEQ ID NO:1;
 - f) a polynucleotide consisting of nucleotides 163-348 of SEQ ID NO:1;
 - g) a polynucleotide consisting of nucleotides 163-351 of SEQ ID NO:1;
 - h) a polynucleotide consisting of nucleotides 163-354 of SEQ ID NO:1;
 - i) a polynucleotide consisting of nucleotides 355-426 of SEQ ID NO:1;
 - j) a polynucleotide consisting of nucleotides 1-73 of SEQ ID NO:1;
 - k) a polynucleotide consisting of nucleotides 1-162 of SEQ ID NO:1;
 - l) a polynucleotide consisting of nucleotides 1-342 of SEQ ID NO:1;
 - m) a polynucleotide consisting of nucleotides 74-342 of SEQ ID NO:1;
 - n) a polynucleotide consisting of nucleotides 74-345 of SEQ ID NO:1;
 - o) a polynucleotide consisting of nucleotides 74-348 of SEQ ID NO:1;
 - p) a polynucleotide consisting of nucleotides 74-351 of SEQ ID NO:1; and
 - q) a polynucleotide consisting of nucleotides 74-354 of SEQ ID NO:1.

20. An expression vector comprising the following operably linked elements:
 - a transcription promoter;
 - a DNA molecule that encodes a polypeptide according to claim 1; and
 - a transcription terminator.
21. An expression vector according to claim 20 further comprising a secretory signal sequence operably linked to said polypeptide.
22. An expression vector according to claim 20, wherein said polynucleotide encodes a polypeptide covalently linked amino terminally or carboxy terminally to an affinity tag.
23. A cultured cell into which has been introduced an expression vector comprising the following operably linked elements:
 - a transcription promoter;
 - a polynucleotide molecule that encodes a polypeptide according to claim 1; and
 - a transcription terminator, wherein said cultured cell expresses said polypeptide encoded by said polynucleotide segment.
24. A culture cell according to claim 23, wherein said cell further comprises a second expression vector comprising the following operably linked elements:
 - a transcriptional promoter;
 - a DNA sequence encoding a prohormone convertase; and
 - a transcriptional terminator.
25. A cultured cell according to claim 24, wherein said prohormone convertase is selected from the group consisting of prohormone convertase 1/3, prohormone convertase 2, prohormone convertase 4, PACE, PACE4, furin, and kex2.
26. A method of producing a protein comprising:
 - culturing a cell into which has been introduced an expression vector comprising the following operably linked elements:
 - a transcription promoter; a polynucleotide molecule that encodes a polypeptide according to claim 1; and a transcription terminator;
 - whereby said cell expresses said polypeptide encoded by said polynucleotide segment; and
 - recovering said expressed protein.

27. A method of producing a protein according to claim 26, wherein said cell further comprises a second expression vector comprising the following operably linked elements:

a transcriptional promoter; a DNA sequence encoding a prohormone convertase; and a transcriptional terminator.

28. A method of producing a protein according to claim 27, wherein said prohormone convertase is selected from the group consisting of prohormone convertase 2, prohormone convertase 3, prohormone convertase 4 and furin.

29. An antibody or antibody fragment that specifically binds to a polypeptide according to claim 1.

30. A polypeptide according to claim 1, in combination with a pharmaceutically acceptable vehicle.

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